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ELECTRONIC COMPUTER PROGRAMMING INSTITUTE

I·B·M Data Processing and Computer Programming Course

I.B.M. SYSTEM /360 - COBOL
EXAMINATION SUPPLEMENT
STUDY UNIT COBOL 1 — COBOL 3

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Substitute Characters Used in Program Listings

Actual Character	Substituted Character
(	%
)	□
,	@
=	#

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EXAMINATION SUPPLEMENT

Lessons C 1 — C 11

This supplement contains examinations and
problems to be used by the student to further
his understanding of the material contained
in each lesson.

1.   The COBOL language is a

    a.   machine-oriented language
    b.   problem-oriented language
    c.   scientific language
    d.   machine language

2.   COBOL was developed by

    a.   programmers and users of computer systems
    b.   users of computer systems
    c.   manufacturers of computer systems
    d.   both b. and c. above

3.   Which of the following is false?

    a.   Once a COBOL program has been compiled, it can be run on any computer.
    b.   A COBOL programmer can, in general, program for any computer.
    c.   To compile a COBOL program for the 360, the programmer must use a compiler designed specifically for the 360.
    d.   Programs written in COBOL are easily understood.

4.   COBOL programs consist of

    a.   nouns and verbs
    b.   symbolic op codes and addresses
    c.   sentences and paragraphs
    d.   an English compiler

5.   Object programs are produced by

    a.   programmers
    b.   CODASYL
    c.   compilers
    d.   computer manufacturers

6.   Which of the following is true?

    a.   The programmer must describe the format of his data.
    b.   The programmer may describe the format of his data.
    c.   The programmer must describe his data only if it is in -- or to be stored in -- binary format.
    d.   The programmer must describe his data only if it is in -- or to be stored in -- packed format.

7. The smallest addressable unit in storage is

    a. bit
    b. bite
    c. byte
    d. word

8. Which of the following is true?

    a. binary operations deal with variable-length data.
    b. binary operations deal with fixed-length data.
    c. decimal operations deal with variable-length data.
    d. both b. and c. above.

9. Data in EBCDIC format is described as

    a. DISPLAY
    b. DISPLAY-3
    c. COMPUTATIONAL
    d. PACKED

10. A byte contains 1111 1011. Its format is

    a. COMPUTATIONAL
    b. COMPUTATIONAL-3
    c. DISPLAY
    d. PACKED

1. The divisions in a COBOL program

    a. must be included
    b. may be omitted if not needed
    c. may be written in any order
    d. if included, must be written in a fixed order

2. The order in which the divisions must appear are -

    a. Identification, Data, Environment, Procedure
    b. Procedure, Data, Identification, Environment
    c. Identification, Division, Data, Procedure
    d. Identification, Environment, Data, Procedure

3. All divisions contain -

    a. Entries
    b. paragraphs
    c. elements
    d. both a and c above

4. Which division does not contain sections?

    a. Identification
    b. Data
    c. Procedure
    d. Environment

5. Which division does not contain paragraphs?

    a. Procedure
    b. Identification
    c. Environment
    d. Data

6. In which division is the use of sections optional?

    a. Data
    b. Environment
    c. Procedure
    d. Identification

7. Divisions, sections and paragraphs are identified by -

    a. programmer-supplied names
    b. header entries
    c. Procedure division entries
    d. Identification division entries

8. A programmer-supplied name

    a. is an element which can consist of letters, digits and hyphens
    b. may not exceed 30 characters in length
    c. cannot have the same spelling as a reserved word
    d. all of the above

9. Programmer-supplied names

    a. are created by the programmer
    b. are selected from a fixed list of names
    c. identify data, work areas and constants
    d. both a and c above

10. Reserved words

    a. appear in some header entries
    b. must be selected from a fixed list of programmer-supplied words
    c. cannot appear in an entry containing a programmer-supplied name
    d. must end in a period

11. Figurative constants are -

    a. built-in constants
    b. elements
    c. reserved words
    d. all of the above

12. The maximum length of a non-numeric literal is -

    a. 30 characters
    b. 120 characters
    c. 120 characters and sign
    d. 18 characters

13. Which of the following is an invalid non-numeric literal?

    a. 'DON'T GO NEAR THE WATER'
    b. 'IDENTIFICATION DIVISION'
    c. '-HYPHEN-'
    d. '3+'

14. A non-numeric literal

    a. may be enclosed in quotation marks
    b. may include the quotation mark
    c. must be enclosed in quotation marks
    d. must be enclosed in quotation marks if the literal includes a quotation mark

15. The maximum length of a numeric literal is

    a. 1 byte
    b. 18 bytes
    c. 18 digits
    d. 120 digits

16. Which of the following is a valid numeric literal?

    a. 1.23+
    b. +1.23
    c. +123.
    d. .+123

17. Level numbers are

    a. reserved words
    b. entries
    c. used in the Data division only
    d. both a and b above

18. A level number

    a. must be followed by the reserved word FILLER
    b. must be followed by a programmer-supplied name
    c. must be followed by a picture
    d. must be followed either by a programmer-supplied name or the reserved word FILLER

19. Which of the following statements is true?

    a. a picture must end in a period
    b.   by a level-number
    c. a picture must be preceded   by the reserved word(s)
        PICTURE or PICTURE IS
    d. pictures must be enclosed in quotation marks

20. Which of the following statements is false?

    a. the maximum length of a picture is 30 characters
    b. an entry containing a picture must begin with a level number
    c. a picture can be used to describe the length of an item
    d. a picture may contain an unsigned non-numeric literal enclosed in parenthesis

1. A period indicates

   a. the beginning of an entry
   b. the beginning of an element
   c. the end of an entry
   d. the end of an element

2. An asterisk in an arithmetic expression indicates -

   a. addition
   b. subtraction
   c. multiplication
   d. division

3. A slash (/) in an arithmetic expression indicates -

   a. addition
   b. subtraction
   c. multiplication
   d. division

4. The symbol $<$ is equivalent to the phrase -

   a. is equal to
   b. make equal to
   c. is greater than
   d. is less than

5. Which of the following statements will calculate the net price by subtracting the amount of discount from the sale price?

   a. COMPUTE NET = PRICE - DISCOUNT-AMOUNT
   b. COMPUTE NET = PRICE - DISCOUNT - AMOUNT
   c. COMPUTE NET = PRICE-DISCOUNT-AMOUNT
   d. COMPUTE NET = PRICE-DISCOUNT - AMOUNT

6. A period

   a. must be preceded and followed by a space
   b. must be followed by a space
   c. must not be preceded by a space
   d. both b and c above

7. In COBOL notation, words printed in upper case -

   a. must always be used
   b. must be used if underlined
   c. must be underlined on the coding sheet if used.
   d. are provided for clarity only

8. Words printed in lower case

    a. represent information which must be supplied by the programmer
    b. may be omitted if not underlined
    c. are reserved words
    d. both b and c above

9. Material enclosed in braces ({ })

    a. may be omitted
    b. represent fixed options, one of which must be selected
    c. will consist of reserved words only
    d. will consist of programmer-supplied information only

10. Material enclosed in brackets ([ ])

    a. cannot be omitted
    b. may be omitted
    c. appears only in the Data division
    d. none of the above

11. Which of the following entries must be written in Margin A?

    a. division and section header entries
    b. paragraph header entries
    c. level indicators
    d. all of the above

12. If the rule for an entry states that it must begin in Margin A -

    a. it must begin in column 8
    b. it may not extend into Margin B
    c. it may begin in columns 8, 9, 10 or 11
    d. none of the above

13. An element may not be continued on the next line -

    a. because of the assumed space rule
    b. unless a hyphen is written in column 7
    c. unless a continuation quotation mark precedes the continued element
    d. both b and c above

14. The format of the VALUE clause is: <u>VALUE</u> IS literal. To specify a
    value of 'A', which of the following clauses is written correctly?

    a. VALUE IS LITERAL 'A'
    b. VALUE IS A
    c. VALUE IS literal 'A'
    d. VALUE IS 'A'

15. Assuming that there are only eleven spaces left on a line, which is the correct way to write the name PAYROLL-MASTERFILE?

    a.   PAYROLL-MAS on the first line and TERFILE on the next line
    b.   PAYROLL- on the first line and MASTERFILE on the next line
    c.   PAYROLL on the first line and -MASTERFILE on the next line
    d.   none of the above.

You are to code the entries in the Identification and Environment divisions for the following program. A file of employee records is to be read and a listing printed showing the employee name, employee number, gross year-to-date earnings and net year-to-date earnings. Input is on magnetic tape. Output will be printed on a 1403 printer and program is to test for channel 12. A model 30 with 32,768 bytes of main storage will be used to compile and execute the program. With the exception of the SE-CURITY paragraph, all optional paragraphs in the Identification division are to be included.

1. Which of the following statements is true?

    a. Both file and record descriptions must be written for each file referenced in the program.
    b. File descriptions must be included but record descriptions are optional.
    c. File descriptions are optional but record descriptions are mandatory.
    d. File descriptions appear only in the Environment division.

2. A file description consists of:

    a. A level-indicator and a file-name.
    b. A level-indicator, a file-name and one or more entries.
    c. A level-number, a file-name, and one or more clauses.
    d. A level-indicator, a file-name, and two or more clauses.

3. The end of a file description entry is indicated by:

    a. the Data Record clause.
    b. a period.
    c. the Label Record clause.
    d. the beginning of the record description.

4. The level-indicator FD:

    a. must be written within Margin A.
    b. may be written within Margin B.
    c. must be followed by a file-name written within Margin B.
    d. both a and c above.

5. The Recording Mode clause:

    a. may be omitted if the records have no format.
    b. must be omitted if the format of the records is mode V.
    c. if omitted, will cause the compiler to assume mode V.
    d. if omitted, will cause the compiler to assume mode U.

6. Files and records which contain record-length and block-length fields, are specified as:

    a. Mode V.
    b. Mode U.
    c. Mode F.
    d. Either a or c above.

7. If the Block Contains clause contains the optional word RECORDS, integer-1 refers to:

   a. the number of records in each block in a file with fixed length records.
   b. the number of records in the file.
   c. the number of the longest records which will form the longest possible block in a file with variable length records.
   d. both a and c above.

8. If integer-2 is specified in the Record Contains clause, it refers to:

   a. the length of the longest record in the file.
   b. the length of the shortest record in the file.
   c. the length of the shortest block in the file.
   d. the length of the longest block in the file.

9. The Label Records clause:

   a. must be included in every FD entry.
   b. must specify OMITTED for card and printed files.
   c. must specify OMITTED if the file contains non-standard labels.
   d. all of the above.

10. The Data Records clause:

   a. must be included in every FD entry.
   b. must specify the record-name which will appear in an associated record description.
   c. may specify more than one record-name.
   d. all of the above.

You are to code the Identification, Environment and Data division entries for the following program. The input file is on cards which have the format shown in Figure 8. With the exception of the customer name field, all fields are numeric. The program is to read the input file and punch out a file of cards in the format shown in Figure 9. Both files will be processed by a 2540 reader/punch. Program name is to be 'EXERCISE".

Figure 8. INPUT CARD FORMAT

Figure 9. OUTPUT CARD FORMAT

EXAMINATION - Lesson C-7

Program is to read a file of cards from a 2540 reader. The
format of the cards is shown in Figure 7. A listing is to be printed
on a 1403 printer with 132 print positions. The format of the printed
line is shown in Figure 8.

All amounts are to be edited as shown below:

Invoice amount	to be edited as	$xx,xxx.xx
Discount amount	to be edited as	$xxx.xx
Amount paid	to be edited as	$x,xxx.xx
Zero suppression to be carried to the cents position.		

The program is to test for channel 12 and skip to channel 1
when this occurs. This means that an APPLY clause must appear
in the Environment division to equate an overflow-name to the
channel 12 condition.

Figure 7 INPUT CARD FORMAT

Cust. #		Cust. Name		Inv. Amt.		Disc. Amt.		Amt. Paid	
1	5 6	16 17	38 39	50 51	60 61	65 66	72 73 77	78	86 87 132

Figure 8 FORMAT OF OUTPUT RECORD

1. Data-names in arithmetic statements must refer to -

a.	elementary numeric items
b.	group items
c.	elementary report items
d.	elementary numeric items whose usage is DISPLAY

2. The 360 can perform arithmetic only on -

a.	binary items
b.	packed decimal items
c.	external decimal items
d.	both a and b above.

3. Given the statement and item descriptions shown below, which of the items must be converted before addition can take place?

> ADD FLDA FLDB GIVING FLDC.
> 77 FLDA PICTURE S99 COMPUTATIONAL-3.
> 77 FLDB PICTURE S99.
> 77 FLDC PICTURE S999.

a.	FLDA
b.	FLDB
c.	FLDC
d.	FLDB and FLDC

4. If a size error occurs and the SIZE ERROR option is specified -

a.	the run is terminated and the words 'SIZE ERROR' are printed.
b.	the partial result is stored and the truncated high-order digits are saved for the programmer.
c.	nothing is stored and the imperative statements in the option are executed.
d.	the receiving field is made large enough to accommodate the high-order digits.

5. Given the statement - ADD A, B, C GIVING TOTAL - which of the following statements concerning the original contents of TOTAL is true?

a.	The contents are ignored.
b.	The contents are replaced by A + B + C.
c.	The contents are added to A + B + C.
d.	Both a and b above.

6. After execution of - SUBTRACT A, B FROM C GIVING D. Which of the
   following statements is false?

a.	The result is in both C and D.
b.	The result is in D and C is unchanged.
c.	The contents of A and B are unchanged.
d.	The contents of D are ignored during subtraction.

7. Which of the following MULTIPLY statements is correct?

a.	MULTIPLY HOURS BY 1.5.
b.	MULTIPLY HOURS BY 1.5 ROUNDED.
c.	MULTIPLY HOURS BY 1.5 GIVING OTHOURS.
d.	MULTIPLY HOURS BY 1.5 ROUNDED GIVING OTHOURS.

8. Which of the statements shown below will divide 2 into the sum of A and
   B and multiply the quotient by the difference of C minus D?

a.	COMPUTE RESULT = A + B / 2 * C - D.
b.	COMPUTE RESULT = ((A + B) / 2) * (C - D).
c.	COMPUTE RESULT = A + (B / 2) * (C - D).
d.	COMPUTE RESULT = A + B / (2 * C) - D.

9. When the GO TO statement is used as a switch -

a.	it must be the only statement in a paragraph.
b.	it must be the first statement in a paragraph.
c.	it must be the last statement in a paragraph.
d.	it must appear in a paragraph whose name includes the word 'SWITCH'.

10. Which of the ALTER statements below, will change the GO TO statement
    at SWITCH-8 so that a branch to RETURN-POINT will occur?

SWITCH-8.   GO TO RETURN-2.

a.	ALTER RETURN-POINT TO PROCEED TO SWITCH-8.
b.	ALTER GO TO TO GO TO RETURN-POINT.
c.	ALTER RETURN-2 TO PROCEED TO RETURN-POINT.
d.	ALTER SWITCH-8 TO PROCEED TO RETURN-POINT.

1. Which of the following statements is correctly worded to test if FIELD contains numeric data?

> 02 FIELD PICTURE A(5).

   a. IF FIELD IS NUMERIC ....
   b. IF FIELD IS ALPHABETIC.........
   c. IF FIELD IS NOT ALPHABETIC ....
   d. Both b and c above.

2. An alphanumeric item may be compared to -

   a. any item
   b. group, alphanumeric, alphabetic and report items
   c. numeric items which are whole numbers with DISPLAY usage
   d. both b and c above

3. An alphabetic item cannot be compared to a numeric item because:

   a. alphabetic items may not contain digits
   b. numeric items may not contain letters or spaces
   c. they are not in DISPLAY format
   d. both a and b above

4. Given the statement shown below, in order for a branch to RESULT to take place:

> IF FLDA = A AND FLDB = C OR FLDC = D GO TO RESULT.

   a. FLDA must contain an 'A' and FLDB must contain a 'C'
   b. FLDB must contain a 'C' or FLDC must contain a 'D'
   c. FLDA must contain an 'A' and FLDC must contain a 'C'
   d. FLDA must contain an 'A' and FLDB must contain a 'C'
      or FLDC must contain a 'D'

5. What kind of test is represented by the statement: IF UNEMPLOYED GO TO HELP -

   a. sign
   b. condition-name
   c. class
   d. relation

6. Which type of test would be required to determine if A was greater than B?

   a. sign
   b. condition-name
   c. class
   d. relation

7. Given the record descriptions shown below, a relation test will cause the conversion of -

```
02 NUMBER-A  PICTURE 99.
02 NUMBER-B  PICTURE 99 COMPUTATIONAL.
```

   a. NUMBER-A
   b. NUMBER-B
   c. Both numbers
   d. none of the above

8. Given the record descriptions shown below, a relation test will cause the conversion of -

```
02 NUMBER-A  PICTURE XX.
02 NUMBER-B  PICTURE 99.
```

   a. NUMBER-A
   b. NUMBER-B
   c. Both numbers
   d. None of the above

9. In the statement 'IF AMOUNT NOT < 85 AND AMOUNT NOT > 92 GO TO FINE'; a branch to FINE will occur -

   a. If amount 84 or under
   b. If amount greater than 92
   c. If amount 85 to 92
   d. Both a and b above

10. Which of the following statements will search a file for widows, over 50 and no children or widows, over 50 with adult children?

   a. IF WIDOW AND OVER-50 AND NO-CHILDREN OR WIDOW AND OVER-50 AND ADULT-CHILDREN GO TO FOUND.
   b. IF WIDOW AND OVER-50 AND (NO CHILDREN OR ADULT-CHILDREN) GO TO FOUND.
   c. IF OVER-50 AND (NO-CHILDREN OR ADULT-CHILDREN) AND WIDOW GO TO FOUND.
   d. All of the above.